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Deforestation and increased fire risk

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Deforestation is already a major cause of carbon emissions, currently estimated to exceed those from transport, and climate change is putting further pressure on forests, with less rain and increased drought leading to increased risk from fire.

Met Office Hadley Centre scientists attending this week's UN climate conference in Poznan claim that new estimates of future deforestation in critical regions, such as the Amazon, are much larger than those used by the Intergovernmental Panel on Climate Change.

With no controls on deforestation, the area of forest lost could be five times greater than in the SRES scenario. Even with effective governance the loss could be double.

Dr Vicky Pope, head of climate advice at the Met Office, said: "In addition to man-made deforestation, climate change may cause the 'die-back' of the Amazonian forest. However, deliberate deforestation in Amazonia is likely to have a bigger impact in the short term".

Climate scientists are assessing the potential impacts of ongoing deforestation on climate change and the extent to which reducing deforestation could contribute to stabilising greenhouse gas concentrations.

By avoiding deforestation during the early part of this century, carbon emissions would be reduced by up to 27 billion tons by 2050. In a double benefit, preservation of the forest would maintain a carbon sink due to CO2 fertilisation of photosynthesis worth 4 Gt (billion tons of carbon, in the form of carbon dioxide)C by 2050.

Climate change puts further pressure on forests. In previous droughts, such as 2005, fires used for forest clearance became uncontrolled and larger areas were burnt through this 'fire leakage'.

Climate change is likely to reduce rainfall in the region. Even if this does not directly damage plants very much through drought, it is likely to increase the risk of fire leakage which would magnify the impact of deforestation.